**TESTIMONY ON H.R. 4043**

**BY**

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**BEFORE THE**

**SUBCOMMITTEE ON FISHERIES, WILDLIFE, OCEANS**

**AND INSULAR AFFAIRS**

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## I. INTRODUCTION

Mr. Chairman and Distinguished Members of this Subcommittee, I am pleased to appear before you regarding H.R. 4043. I have fished commercially for shellfish off California's coast for 40 years. I am appearing today on behalf of the California Sea Urchin Commission and all California shellfish fishermen. The Commission is a public agency created under the laws of California whose goal is to ensure a sustainable sea urchin resource for present and future generations.

My remarks will focus on new section 2283(g) added by section 2(c) of H.R. 4043. This provision of H.R. 4043 requires the Fish and Wildlife Service ("FWS") to develop a comprehensive ecosystem-based management plan for the threatened sea otter, the endangered black abalone, the endangered white abalone, and California's other shellfish resources. H.R. 4043 provides that until this ecosystem management plan is completed, FWS shall not change the existing sea otter management program.

Without this bill keeping the status quo in place until a comprehensive ecosystem management plan is prepared, FWS will implement its single species management plan to allow unrestricted geographic range expansion of the threatened sea otter. The problem is that the endangered black abalone and the endangered white abalone are directly in the path of otter range expansion. Both abalones are favorite sea otter prey. FWS' plan, unless stopped, could well mean that both abalones will become extinct because of sea otter predation.

Unless stopped, FWS' single species management plan also means that many of California's other shellfish resources, also favorite sea otter prey, could become threatened or endangered because of sea otter predation. FWS' plan means California's commercial shellfish fisheries, which employ thousands of people and which generate tens of million of dollars in domestic sales and exports, will be out of business.

Worse still, FWS' plan fails to address the real threat to sea otters – parasites like toxoplasma delivered by urban runoff along the central California coast. The sea otter population is within 400 animals of its delisting number and about 300 strand and die each year largely because of water quality related issues. Rather than address this problem, FWS has chosen to ignore it. Instead of addressing the real problem for sea otters, FWS has decided, unless you pass H.R. 4043, to allow unlimited sea otter range expansion without considering the effects of this plan on other species, including species protected under the Endangered Species Act ("ESA").

Mr. Chairman, I am not saying endangered abalones are more important than sea otters. I am not saying that other shellfish resources, and the fishermen who depend on them, are more important than sea otters. I am saying we need an ecosystem-based management plan that balances the needs of all species. We cannot achieve ecosystem management with FWS' single species management plan. The irony is that FWS has been campaigning for years against single species management and arguing vigorously for ecosystem management that considers and balances the needs of all species (including humans). Yet, for sea otters, FWS proposes a return to single species management, elevating one species over all others.

Congress should pass H.R. 4043 without amendment to prevent FWS from implementing its single species management plan and to force FWS to develop a comprehensive and effective ecosystem based management plan. Allow me to explain the problems with FWS' plan.

## II. SEA OTTER PREDATION THREATENS WHITE ABALONE

White abalone was listed as endangered in 2001. This extremely depleted remnant white abalone population is projected to become extinct without human intervention. The current recovery plan is to reestablish white abalone by introducing laboratory raised animals to the wild at depths of 18-26 meters – the white abalone's historic optimal habitat.

### A. Sea Otters and Abalone Share the Same Habitat

FWS single species sea otter management plan likely means the white abalone recovery plan will fail. FWS admits that 95% of the critical foraging depth for female sea otters is 2-20 meters and for males 2-40 meters. Revised Draft Supplemental Environmental Impact Statement, Translocation of Southern Sea Otters, 2011 ("DSEIS") at 44, 85. FWS also admits "historically, white abalone may have been restricted to waters deeper than 25 meters (82 feet) as a result of sea otter predation." *Id*.

Indeed, in its 2011 section 7 ESA consultation regarding the captive propagation of white abalone, the National Marine Fisheries Service ("NMFS") found that sea otters are a significant source of white abalone mortality. More importantly, NMFS determined that "sea otter predation may limit white abalone populations to small individuals … and, thus, are expected to represent a natural threat to the recovery of the species…." NOAA 2011. In a January 3, 2006 letter to FWS, the Marine Mammal Commission ("MMC") concurred, stating FWS' "assumption that white abalone's primary habitat is in water too deep for the sea otters to forage is … questionable" and that FWS' plan of unrestricted sea otter range expansion "would further exacerbate the decline of white abalone...." Letter to Diane K. Noda, Field Supervisor, USFWS, Ventura, CA, from David Cottingham, Executive Director, MMC, January 3, 2006. In other words, given the depth overlap between sea otters and white abalone, and the feeding preference of sea otters, if sea otters are present in areas containing white abalone, otter predation will likely cause a population collapse of white abalone.

FWS' reply is that sea otter predation will not be a problem because white abalone will have recovered to sufficient numbers by the time sea otters fully occupy white abalone habitat. Not only does this admit there is a problem with sea otter predation, but FWS offers no proof for its claim that the white abalone population will reach numbers sufficient to withstand the ravages of sea otter predation before sea otters arrive in abalone habitat. Recall the MMC's January 2006 letter that calls FWS' claim of no problem an "assumption" that is both "questionable" and "unlikely." Furthermore, in making this "questionable" and "unlikely" assumption, FWS arbitrarily limited its almost non-existent analysis of sea otter predation impacts to a ten-year time frame. This ignores the fact that the recovery of white abalone will take decades. Sea otter predation over those decades is likely to prevent the recovery of the endangered white abalone, if not jeopardize its survival.

The second problem with FWS' attempt to ignore the problem of sea otter predation is FWS' argument that all is well because white abalone habitat can be found at up to 60 meters. Even if FWS is correct that the majority of sea otter predation occurs at depths up to 40 meters, then two thirds of white abalone habitat will cease to exist if FWS proceeds with its plan.

The third problem with FWS' effort to dismiss the ecologically severe effects of unrestricted sea otter range expansion is the fact that optimal white abalone habitat occurs at depths less than 30 meters. NOAA 2011. The MMC's 2006 letter to FWS notes that the abalone's optimal habitat is "shallow, protected areas." The MMC characterizes the deeper waters to which FWS' plan would confine white

abalone as "suboptimal habitat." These conclusions are supported by the California Department of Fish and Game 1973-1974 Cruise Reports. In the 1973 survey, 80% of white abalone were located in waters less than 22 meters. In 1974, two surveys showed 68% and 57% of white abalone were found at depths of less than 22 meters. Thus, the net effect of FWS' plan is to confine white abalone to sub-optimal habitat.

In considering the significance of these data about optimal abalone habitat, recall that FWS admits critical otter foraging habitat is up to 20 meters for females and 40 meters for males. In other words, up to 80% of optimal white abalone habitat will, according to FWS, be unavailable to the abalone if FWS is allowed to proceed with its single species management plan.

The fourth problem with FWS' belief that its plan presents no problem for white abalone is FWS' claim that sea otters do not forage at depths below 40 meters. Available data says FWS is wrong. California acted to limit the accidental drowning of foraging sea otters in gill and trammel nets by prohibiting the use of such nets in waters less than 109 meters because of clear evidence that sea otters forage at those depths. The evidence included systematic aerial surveys documenting large numbers of sea otters observed beyond the 90 meter depth contour. Sea otters have also been caught in king crab trap sets in Alaska at depths of 80 meters. Time depth recorders implanted in sea otters document sea otter foraging in California and Alaska waters at depths greater than 88 meters. Multiple observations by NMFS officials of sea otters caught in Pacific cod traps set at depths ranging from 44-73 meters in Alaska further demonstrate that FWS is wrong.

Contrary to FWS' view, white abalone and sea otters share the same habitat geographically and spatially. Sea otter foraging threatens the survival and recovery of the endangered white abalone, a species estimated to be at one percent of its historic level. Rogers-Bennett et al. 2002.

### B. The Effects of Sea Otter Predation on Abalone

Within established sea otter ranges, nearly all abalone populations are confined to crevices that are inaccessible to sea otters. Tegner, Mia J., J. D. DeMartini, K. A. Karpov, 1992 at 370-383. FWS admits this fact. DSEIS at 85. The reason sea otters and abalone are incompatible in the circumstances that exist today is seen by examining sea otter consumption rates of abalone. If a group of only 50 male sea otters moved into an abalone area, and each sea otter weighed an average of 60 pounds, typical for male sea otters, and each otter ate 25%-30% of its body weight daily, again typical for sea otters, and if 60% of the diet was abalone, then these 50 sea otters would consume approximately 500 pounds of abalone each day. In only one year, sea otters would consume 90 tons of abalone. For comparison purposes, in 1996, the last year the commercial abalone fishery was open, commercial abalone landings were 114.75 tons.

Further illustrating the conflict between sea otters and abalone are the events at San Nicolas Island ("SNI") after sea otters were translocated there. Although relatively few sea otters that were translocated to SNI beginning in 1987 actually remained at the Island, red abalone landings in this once vital commercial fishery declined as a percentage of State landings from 41% in 1987 to 30% in 1988, 12% in 1989, and 3% in 1990. CDF&G 1991. Indeed, studies have shown that in as short as six years, sea otter predation reduced red abalone populations by 90% within the established portion of the parent range.

### C. The Abalone Recovery Plan

It is also important to consider the relationship between FWS' single species management plan and the White Abalone Recovery Plan. The Recovery Plan assumes the reintroduction of laboratory raised white abalone into its optimal habitat. White abalone reproduce better and grow faster at the shallower end of their optimal habitat where there is more drift algae and warmer water. Therefore, this will be the preferred area for reintroduction. However, it is undisputed that these shallow waters are well within the sea otter's foraging range. In other words, FWS' plan for unlimited sea otter range expansion raises the very real spectre of thwarting the White Abalone Recovery Plan by allowing sea otters into areas where abalone re-colonization might otherwise occur.

To achieve delisting, white abalone must show increases in species density as well as geographic abundance, a healthy size frequency, and reoccupation of at least 75% of its historic range. NMFS 2008. This will be a daunting task even without sea otter predation given that the current white abalone population does not appear to be self-sustaining. Hobday et al. 2001. As the Abalone Recovery Plan acknowledges, sea otters are known to quickly reduce emergent abalone abundance to about 0.007 per square meter (Wendell 1994), which is about an order of magnitude less that the required delisting number.

Further, foraging sea otters tend to eat the largest, most exposed animals first. Only the smaller animals remain in protected crevices. This predation pattern lowers reproductive success because smaller animals tend to be younger with lower egg production. Hobday et al. 2001.

Where sea otters overlap with white abalone, the abalone population will not exhibit growth but, in the best case, can only stabilize and be relegated to cracks and crevices. Cooper et al. 1977. Without some type of spatial planning, it is only a matter of time before sea otters fully occupy white abalone habitat. Once that happens, white abalone will be forever consigned to endangered status, if not extinction.

Given all of these facts, it is not surprising that the Abalone Recovery and Management Plan states at §2.1.9.3: "The survival of several depleted abalone populations in southern California could be jeopardized by expansion of the sea otter's range and the accompanying increase in sea otter predation on abalone...." FWS' claim that there are no conflicts between its single species management plan for otters and white abalone conservation and recovery is belied by the facts.

## III. SEA OTTER PREDATION THREATENS BLACK ABALONE

Black abalone was listed as endangered in 2009. As with white abalone, FWS' single species management plan threatens both the survival and the recovery of black abalone. The effects of sea otter predation discussed above regarding white abalone apply with equal force here and need not be repeated.

### A. Habitat Overlap

The existence of habitat overlap between sea otters and black abalone cannot be questioned. Even FWS admits "[b]lack abalone inhabit water depths well within the range of sea otter predation...." DSEIS at 88. FWS also admits that a "considerable portion of the black abalone's range overlaps the current range of the southern sea otter." *Id.* Nevertheless, FWS claims black abalone can inhabit deep fissures beneath rocks and black abalone can "persist" there. *Id.*

The fundamental problem with FWS' position is that it confines the endangered black abalone to persisting, to mere survival, at best. Although FWS admits black abalone "have nearly been extirpated in southern California waters," DSEIS at 37, FWS apparently sees no problem with introducing a voracious apex predator into an already precarious circumstance for black abalone. In response to FWS' assertion that black abalone will be able to recover to sufficient numbers before sea otter predation is a problem, not only does FWS offer no proof for its claim but the MMC's January 3, 2006 letter to FWS calls FWS' assumption "questionable" and "unlikely."

As is the case with white abalone, FWS' single species management plan for sea otters will have significant and adverse impacts on the survival and recovery of the endangered black abalone, a species estimated to be at only one percent of its historic population level. Rogers-Bennett et al. 2002. Indeed, what FWS ignores is that in the mid-1980s, a pathogen began infecting black abalone populations along the southern California and Mexican coasts, causing a 95%-98% mortality. The evidence indicates that the mass mortality associated with this disease is continuing northward. Van Blaricom et al. 2009. Adding sea otter predation on top of this devastating disease could cause a total population collapse of black abalone in southern California.

### B. The Endangered Species Act

The ESA requires each federal agency to "insure" that its actions are "not likely to jeopardize the continued existence" of an endangered or threatened species and will not result in the "destruction or adverse modification" of any "critical habitat" for the species. 16 U.S.C. §1536(a)(2). FWS has defined "destruction or modification" as:

> [A] direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alternations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

50 C.F.R. §402.02. Thus, the applicable legal standard is that no federal action may "appreciably diminish" the value of critical habitat for both the survival and the recovery of the listed species.

Three United States Courts of Appeals have agreed that the ESA and its implementing regulations require agencies to look at the effects of their proposed actions on both the survival and the recovery of listed species. *Gifford Pinchot Task Force v. United States Fish and Wildlife Service,* 378 F.3d 1059 (9th Cir. 2004); *New Mexico Cattle Growers Association v. United States Fish and Wildlife Service,* 248 F.3d 1277 (10th Cir. 2001); *Sierra Club v. United States Fish and Wildlife Service,* 245 F.3d 434 (5th Cir. 2001). FWS has not properly considered the impact of its single species management plan on either the survival or the recovery of the black abalone.

At the outset, recall that FWS admits "[b]lack abalone inhabit water depths well within the range of sea otter predation...." DSEIS at 88. Recall also that FWS admits "a considerable portion of the black abalone's range overlaps the current range of the southern sea otter." *Id.* Notwithstanding these two admissions, FWS dismisses the effects of its sea otter range expansion plan on black abalone stating that if the plan is implemented, black abalone can "persist" at low densities. *Id.* In short, FWS sees no problem with its plan because black abalone can "persist" as a species in the face of sea otter predation. The U.S. Court of Appeals for the 9th Circuit, however, specifically condemned this type of thinking

stating it "offends the ESA because the ESA was enacted not merely to forestall the extinction of the species ... but to allow a species to recover to the point where it may be delisted." *Gifford Pinchot Task Force v. United States Fish and Wildlife Service,* 378 F.3d at 1070.

The recent black abalone critical habitat designation confirms that sea otters and black abalone share habitat that overlaps in depth. 76 Fed. Reg. 66806, 66807, 66819 (Oct. 27, 2011). The critical habitat designation also confirms that the geographic area where black abalone are present "directly overlaps" with the range of the sea otter. *Id.* at 66808. Further, the critical habitat designation demonstrates that the range of the black abalone overlaps the area into which FWS proposes to allow sea otters to move. *Id.* at 66819. Finally, it is admitted that sea otters prey on abalone. 75 Fed. Reg. 59900, 59902 (Sept. 28, 2010). Indeed, comments filed by NMFS on the DSEIS confirm that "a single sea otter venturing into a cove with a few hundred abalone could have a population and possibly a species-level impact on abalone." NMFS goes on to state that "just a few otters in the right place … could hinder the recovery of [abalone] throughout its range. In NMFS' view, hindering the recovery of critically endangered species does put the entire species at greater risk of extinction."

A review of the scientific literature confirms that FWS' plan for unlimited sea otter range expansion threatens the survival and the recovery of black abalone. Although the black abalone range currently extends to Point Arena in northern California, the vast majority of abalone populations have historically occurred south of Monterey, particularly in the southern California Islands (Karpov et al. 2000). Approximately half of the critical habitat for black abalone lies south of Point Conception, in areas sea otters are expected to occupy under FWS' plan.

Where adult black abalone occur in sufficient densities, they are targeted by sea otters as a preferred food (Benech 1976). For example, about 40% of all observations of abalone consumed over a 20-year period in the vicinity of the Diablo Canyon Power Plant were black abalone (Benech 1992). A single sea otter needs to consume about seven adult abalone each day to satisfy its caloric needs (Ostfield 1982) and sea otters tend to take the largest, thus the most fecund, abalone first.

Based on FWS' sea otter range expansion data, it is likely that large rafts of 20 or more male sea otters moving south of Point Conception will be the first otters to encounter remnant black abalone populations in southern California and within black abalone critical habitat. These black abalone populations have already been severely depleted, declining 95%-98% because of withering syndrome ("WS"). WS is more lethal in warmer southern waters than in the cooler waters to the north (Vilchis 2005, Altstatt 1996).

The combined effects of WS in warm water and of sea otter predation will act additively, if not synergistically, to prevent the recovery of black abalone, particularly within that half of its critical habitat designated south of Point Conception. Indeed, sea otter predation of black abalone is considered a "high" threat to black abalone recovery (Neuman et al. 2010). Equally, if not more, important, we may never even get to recovery issues because sea otters expanding into newly designated black abalone habitat will, because of predation, cause the collapse and local extinction of remnant black abalone populations in southern California where black abalone population densities are already severely depleted by WS. Reproductive, and the subsequent natural, recruitment of abalone will collapse if densities are reduced to $0.32/m^2$ (Neuman et al. 2010). In many areas, black abalone are perilously near that level, and sea otter predation will likely push black abalone over the brink.

## IV. THE IMPACT OF FWS' PLAN ON SHELLFISH

Endangered abalone are not the only species in the ecosystem that will be threatened by FWS' single species management. Many other species of shellfish will also see their populations plummet, perhaps to endangered status, if FWS goes ahead with its single species management plan. FWS states sea otters "consume an amount of food equivalent to 23 to 33 percent of their body weight per day...." DSEIS at 44. Having admitted this fact, FWS never considers its implications for the future of California's shellfish. Those implications are made clear by examining what will happen to commercial fishermen if FWS proceeds with its plan.

As scientists have noted, "Unless the sea otter is eventually contained, the State's Pismo clam, sea urchin, abalone, certain crab, and possibly lobster fisheries will be precluded. Sea otters do not extirpate these shellfish stocks, they merely reduce the exposed biomass to densities well below those necessary for profitable commercial exploitation or satisfactory recreational use. In all the cases, where sea otters have moved into either pristine areas ... there has been a reduction of over 90% in numbers of shellfish...." Burge 1973, Miller et al. 1975, California Department of Fish and Game 1976. When sea otters enter an area, over time the only remaining macro-invertebrates of edible size are observed deep in crevices where sea otters cannot reach them. Ebert 1968; Lowry and Pearse 1973, Cooper et al. 1978. "Whenever one of these large forage items leaves its protective habitat where sea otters are established, it apparently quickly becomes otter food." Miller 1980 at 11.

Other scientists also recognize that when sea otters reoccupy an area, the result of sea otter predation on shellfish is the end of commercially viable fisheries. "The documented loss of shellfish fisheries associated with sea otter reoccupation strongly suggests the pattern can be used to predict future losses whenever sea otter range expansion occurs." Wendell 1994 at 45-64. Yet another scientist concluded: "within their established range, otter foraging clearly precludes commercial fisheries for abalone and sea urchins." Tegner et al. 1992 at 370-383. Still other scientist have stated: "There is little doubt that the movement of sea otters into [abalone fishery] areas was the cause of the decline and eventual elimination of the commercial abalone fishery." Gotshall et al. 1984. Yet another scientific study concluded: "Our observations of the decline of the Pismo Beach Pismo clam fishery ... provide further evidence that sea otters are directly responsible for the loss of these sport fisheries." Wendell et al. 1986 at 210.

### A. The Impact of the Preferred Alternative on California's Shellfish Resources and Shellfish Fisheries

The impact of unlimited sea otter range expansion on California's shellfish fisheries will be devastating. As the MMC stated: "It is likely that the southward movement of sea otters will seriously affect all shellfish fisheries in California. Currently the sea urchin, sea cucumber, and lobster fisheries are sustainable and represent important economic assets." The MMC continued, stating: "the abandonment of sea otter range management could, over the long term, lead to the elimination of virtually all of the shellfish fisheries along the West Coast; these fisheries have long been major economic and cultural assets over the entire region." Letter to Ms Diana K. Noda, Field Supervisor, USFWS, Ventura, from Marine Mammal Commission, David Cottingham, Executive Director, January 3, 2006.

The view expressed by the MMC is rooted in scientific fact. Sea otters tend to first target the most abundant and easily retrievable prey. For that reason, the sea urchin is normally the first

invertebrate prey species to be depleted once sea otters enter an area where sea urchin exist in high densities, followed by abalone and large crabs, if available. Ostfeld 1982.

A twenty-year study of sea otter diets in a ten mile section of the California coast near Point Buchon, just south of Morro Bay, demonstrates the significant effect sea otters have on sea urchin. The study was initiated in 1973, shortly after sea otters initially migrated into the area. During the next five years, 1973-1977, sea urchin averaged 20% of sea otters diets, with a high of 36% in 1975. For the remainder of the study period to 1993, sea urchin represented just 1.4% because sea otter predation had exhausted the sea urchin population. Benech 1994. This same study examined the density of sea urchin populations, finding that red sea urchin densities approximated 3 per square meter before sea otters began foraging. After only four years of sea otter foraging, the sea urchin densities had dropped below detection levels (less than one per 300 square meters).

Other studies show a much higher predation rate of sea urchins by sea otters. Published observations of sea otter consumption in areas of high sea urchin density show that sea urchins are more than 60% of the sea otter diet. Bodkin, Esslinger, and Monson 2004; Breen, Carson, Foster, and Stewart 1982; Laidre and Jameson 2006; and Miller 1974.

To put these consumption preferences into a very clear perspective, an average size sea otter weighing 50 pounds will consume 12.5 pounds of food daily (25% of its weight using the very low end of consumption set forth in the DSEIS). When sea urchins are available, the favored sea otter prey is the sea urchin roe. Roe often makes up just 7% of the sea urchins weight. Thus, it would take 178 pounds of whole sea urchin each day to provide 12.5 pounds of food for a single sea otter. Annualized, that equals 65,000 pounds of sea urchin in just one year. At this rate, only 169 sea otters, feeding exclusively on sea urchin, would consume the entire annual sea urchin harvest by sea urchin divers. (169 x 65,000 = 11 million pounds).

While sea urchin divers are limited by regulations to not taking small sea urchin, sea otters are not and they typically eliminate any meaningful sea urchin resource within their feeding area. Once an area becomes part of the sea otter's established range, the shellfish population is decimated and the commercial fishery in that area collapses. Benech 1977.

There is ample empirical data documenting the collapse of shellfisheries when sea otters enter an area. These include the collapse of the abalone fishery around Morro Bay, the collapse of the sea urchin fishery around Port San Luis, and the reduction in harvest of red sea urchins by 90% in the area from Point Conception to Santa Barbara within two years after sea otters entered the area in 1998. Long term surveys near Port San Luis revealed that sea urchin densities dropped to 1% of pre-otter densities after only 27 months of sea otter occupation. Benech 1978.

During the winter of 1997/98, approximately 100 sea otters migrated southeast of Point Conception, the southern border of the existing sea otter management zone and just north of Santa Barbara. Within one year, predation on sea urchins was so severe that sea urchin harvesting was no longer viable, at which time the sea otters returned to the northern, familiar portion of their range. The following winter, 1998/99, another raft (or group) of sea otters returned to an area southeast of Point Conception, slightly farther than the previous winter. Again, predation was so severe that sea urchin harvesting in this area is no longer possible. According to records of the California Department of Fish and Game, this area just southeast of Point Conception produced nearly one million pounds of sea

urchin annually prior to 1997, representing a loss of nearly $700,000 in at-the-dock value to sea urchin divers in the area.

Without question, the impact of FWS' plan on California's shellfish resources and the fishermen and processor workers who depend on those resources will be devastating. Researchers considering this situation have stated: "We believe that ... sea otter range expansion will result in the loss of most recreational and commercial shellfish fisheries along the north Pacific rim." Wendell, Pattison, and Harris 1996.

Once sea otters establish themselves in an area with an abundance of sea urchin capable of supporting a commercial fishery they are likely to specifically target red sea urchin (*Strongylocentrotus franciscanus*) as their primary prey since it is easy to catch and has a high nutrient value relative to the energy cost to capture and relative to alternatives. Ostfeld 1982; Breen, Carson, Foster, and Stewart 1982; Laidre, Kristin, and Jameson 2006; Miller (1974).

Sea otters will then target the same age and size class of other sea urchin living at the same depths (Bodkin et al 2004) as the commercial sea urchin fishery targets. This will result in the collapse or loss of a viable fishery. Benech 1977, Johnson 1982.

The sad reality is that FWS simply dismisses as unimportant the clearly foreseeable impacts of its single species management plan on California's shellfish resource and its dependent shellfish fisheries. Yet, FWS admits that "when sea otters permanently reside in a given area, the commercial fisheries for sea urchin, lobster, crab, and sea cucumber will no longer be viable in that area." DSEIS at 93. FWS also admits there is a "direct relationship between percent occupation of habitat and percent loss of shellfish fisheries...." *Id.* at 76. In other words, "when 50 percent of the available habitat [is] occupied by sea otters, shellfish harvests would be reduced by 50 percent." *Id.* at 75. The facts are that shellfish fisheries cease to exist when sea otters are present. As FWS admits "once an area is permanently occupied by sea otters, the commercial sea urchin fishery would no longer be viable in that area." *Id.* at 97-98. Rather than address the true ecosystem impacts of its single species management plan on the shellfish resources off California's, FWS simply decides that these parts of the ecosystem, and the fishermen who depend on them, are expendable.

## B. The Economic Impact of the Preferred Alternative

Leaving aside the fact that FWS completely abandons all concepts of ecosystem management, its single species management plan will also have serious economic consequences. The sea urchin industry is California's fifth largest fishery with over $13 million in domestic sales, $8.7 million in exports, and employing hundreds of people. FWS identifies the sea urchin fishery, along with the lobster, crab, sea cucumber, halibut and white sea bass fisheries, as the fisheries impacted by its plan for sea otters. The economic value of these fisheries approximates $40 million using standard multipliers of ex-vessel value. Wendell 1994.

Today, California has 300 permitted sea urchin divers and an equivalent number of licensed deckhands. Thirty percent of all divers make 100% of their household income from the sea urchin fishery and the average diver derives 63% of all household income from the fishery. Hansen and Dewees 2006. These fishermen will suffer irretrievable harm from FWS' plan.

FWS' plan will also have irreversible impacts on the fish processing industry. If the sea urchin fishery collapsed in southern California, the two sea urchin processors in northern California might

survive, but it is likely that only two of the nine southern California processors would survive, and they would survive only because they deal in other seafood products. Even so, these two processors would experience a significant reduction in business.

Each sea urchin processor employs 30-60 workers, depending on the season. This employment represents approximately 495 workers statewide year around. Overwhelmingly, processor employees earn the legal minimum wage and would face difficulties if they needed to find alternative employment. The National Ocean Economics Program, tracking wages paid in ocean related industries, reports that in 2004 the average seafood processing employee in California was paid $33,853. National Ocean Economics Program, www.oceaneconomics.org. A sample survey of sea urchin processors by the California Sea Urchin Commission suggests a lower average wage is more appropriate, something in the range of $22,000 annually. This would result in an estimated payroll for all California sea urchin processors of approximately $10,890,000 annually – a sizable contribution to the State's coastal communities. If the southern portion of the sea urchin fishery collapsed due to the adoption of FWS' plan, the seven processors who deal in sea urchin exclusively could be forced to terminate nearly 315 employees. This could mean a loss of $6,930,000 to local economies from lost wages alone. Again, FWS improperly dismisses these impacts as inconsequential.

## V. FWS' PLAN PROCEEDS FROM THE WRONG PRESUMPTION

FWS seems to think its plan for unlimited sea otter range expansion is required because the translocation of sea otters to San Nicolas Island authorized by P.L. 99-625 has failed and, therefore, range expansion is the only way to help the sea otter.

Let's start with the purpose of the translocation. FWS admits its "primary purpose…was to bring southern sea otters closer to recovery and to eventual delisting…" DSEIS at 5. The final rule establishing the translocation program states that once the SNI colony is established, southern sea otters could be considered for delisting. 52 Fed. Reg. 29754 (Aug. 11, 1987) at 29775.

FWS believes translocation has failed because the SNI population is "small, and its future uncertain." DSEIS at 5. The intent of translocation was to establish a breeding nucleus of 70 that would expand to 150. *Id*., Appendix C. at 4. To get there the plan was to translocate 250 otters. *Id*. However, FWS translocated only 140 – 56% of the planned number. *Id*. at 1.

Given that FWS stopped the actual translocation at just over 50% of the original objective, it is arbitrary and capricious to judge success of the current population level at San Nicolas Island based on the original assumptions about when and how population levels would be achieved if 250 sea otters were translocated.

In that regard, the status and current trend of the SNI population is illuminating. The 2010 population survey at SNI counted 46 animals. *Id.* at 13. This is 66% of the initial goal for the breeding nucleus. If the full translocation program had been implemented, it is reasonable to assume we would now have a breeding nucleus of 70 animals and would be moving toward the population level of 150. Significantly, at the current reproduction rate, which is approximately 10% annually, the San Nicolas Island population should reach 70 within four years. Even FWS admits the initial objective of 70 sea otters at San Nicolas Island will occur. DSEIS at 77, 89. The fact that this event may not have occurred as rapidly as FWS hoped does not mean the translocation program failed, particularly when FWS' implementation of the program is a principal cause of the delay.

It is noteworthy that the Draft Evaluation of the translocation program accompanying FWS' 2005 Draft Supplemental Impact Statement ("2005 Draft Evaluation") concluded there is nothing that threatens the "health and well-being of the [San Nicolas Island] population ... to the point that the colony's continued survival is unlikely...." 2005 Draft Evaluation at 26. FWS restated this conclusion in 2011. DSEIS, Appendix C at 29. FWS then admits the sea otters at San Nicolas Island "are expected ... to increase in number...." DSEIS at 89. From this perspective, the translocation program is far from the failure declared by FWS.

Four other factors, all ignored by FWS, confirm the success of the translocation. First, virtually all of the sea otters at San Nicolas Island are offspring of the originally translocated population. DSEIS, Appendix C at 13. That means there is a healthy and successfully reproducing population at San Nicolas Island.

Second, at least 150 pups have been born at San Nicolas Island, further confirming the presence of a healthy reproducing population. *Id.* Indeed, FWS has admitted that given the restricted number of animals moved to SNI, and after applying the accepted first year pup mortality to new births, FWS "would not expect to have many more sea otters at the island than we currently have." 2005 Draft Evaluation at 24. The population is where it should be, contrary to claims in the DSEIS that expectations have not been met and that translocation has failed.

Third, the SNI population is reproducing at a rate of 10% annually. Estes et al. at 3-4. This is precisely in the middle of the 5-15% reproduction rate FWS expected. DSEIS, Appendix C at 4. This reproduction rate is better than the 5%-6% rate of the parent population and represents and an "exponential population increase." Estes et al. 2006 at 3. This does not sound like failure.

Fourth, the San Nicolas Island population is healthier than the parent population. A comparison of the translocated population with the parent population found that the "length and mass at age and the age-specific mass to length ratios were significantly greater for sea otters at San Nicolas Island than in the central population." Estes et al. 2006 at 6. The DSEIS confirms this fact noting that the San Nicolas Island sea otters "were in a better body condition" than the sea otters along the central California coast.

The problem is not that the SNI population is unhealthy. The problem is FWS had unrealistic expectations. FWS admits: "In retrospect, our expectations for success were overly optimistic." DSEIS, Appendix C at 18. Because the SNI population did not achieve the population numbers within the time frame originally expected by FWS, FWS says the program failed. Rather than change its unrealistic original assumptions, FWS pretends those assumptions are still valid and declares translocation a failure. In so doing, FWS ignores the current state of the population, ignores the fact that its expectations were questionable, and conveniently forgets that its decision to translocate only 140 sea otters instead of 250 contributed to, if not caused, the slower time frame. FWS incorrectly concludes that "the creation of an established southern sea otter population at San Nicolas Island does not appear to be achievable." *Id.* at 19. The facts outlined above regarding the status, trend, and health of the SNI population belie that conclusion.

The history of other sea otter translocations proves the point. Slow starts to successful translocated sea otter populations due to dispersion are not unexpected. Many of the 89 sea otters translocated to the coast of British Columbia from 1969 to 1972 did not survive. But by 2004, the remnant population had grown to 3,185. Sea Otter Recovery Team, 2007. Similarly, between 1965 and 1969, 412 sea otters were translocated to six sites in southeast Alaska. Recent population estimates

indicate this 412 has grown to as many as 12,632. *Id.* As a final example, as few as ten sea otters remained in the early 1970s after the translocation of 59 animals off the coast of Washington. Jameson, R. J. 1993. The most current population counts in 2006 estimated 790 animals were present, which means the population displayed a mean population growth of 8% since 1989. Sea Otter Recovery Team, 2007

In light of all of these facts, the FWS' conclusion that the SNI translocation has failed is simply wrong.

## VI. CONCLUSION

FWS' single species management plan for unlimited sea otter range expansion not only abandons a preferable ecosystem management plan that balances the needs of all species, but FWS' plan threatens the future, and the survival, of many shellfish species, including endangered white abalone and endangered black abalone. H.R. 4043 should be passed without amendment to stop FWS from proceeding with its single species management plan until a comprehensive and effective ecosystem management plan is developed – and all species are protected.

Indeed, it is worth noting that the Administration, including FWS, are strong supporters of a marine spatial planning initiative. I know that proposal has generated much controversy before this Subcommittee and I am not here to discuss its overall merits. What I would like to point out , what I find ironic, is that while FWS thinks marine spatial planning and ecosystem management are great ideas for everyone else, when it comes to protecting endangered abalone and the shellfish resources of California, including the fishermen who depend on them, all of a sudden, ecosystem management and marine spatial planning are ideas to be rejected – rejected in favor of a single species management plan that ignores the ecosystem and the needs of other species.